U.S. Department of Energy
Technical Qualification Program

Radiation Protection Topical Area

Study Guide

Developed by the
Ohio Field Office,
DOE/EH Office of Technical Training and Professional Development (EH-74),
and the
Oak Ridge Institute for Science and Education (ORISE)

DRAFT
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1. Scope and Background

This study guide encompasses those competencies addressing radiation protection skills and knowledge identified as the radiation protection topical area. The implementation of this standard fulfills one of DOE's commitments to Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 93-3, *Improving DOE Technical Capability in Defense Nuclear Facilities Programs*. This study guide was produced in support of the lead site concept by the Ohio Field Office, DOE/EH, Office of Technical Training and Professional Development (EH-74), and the Oak Ridge Institute for Science and Education (ORISE).

The study guide maintains the original Radiation Protection Qualification Standard's focus on competency rather than on the illustrative supportive knowledge and skills. The parameters used were:

- If a competency and its supporting skills and knowledge seemed to be in conflict, the developer considered the competency over the supporting skills and knowledge.
- The competencies identify a familiarity level, working level, or expert level of knowledge; or they require the individual to demonstrate the ability to perform a task or activity. The exercises, test questions, and learning activities were written for the competency in accordance with these definitions. These levels are defined as follows:

  Familiarity level is defined as basic knowledge of or exposure to the subject or process adequate to discuss the subject or process with individuals of greater knowledge.

  Working level is defined as the knowledge required to monitor and assess operation/activities, to apply standards of acceptable performance, and to reference appropriate materials and/or expert advice as required to ensure the safety of Departmental activities.

  Expert level is defined as a comprehensive, intensive knowledge of the subject or process sufficient to provide advice in the absence of procedural guidance.

  Demonstrate the ability is defined as the actual performance of a task or activity in accordance with policy, procedures, guidelines, and/or accepted industry or Departmental practices.

Many technical training courses and materials have been developed for the Department. To define the scope for resources for this effort, the following parameters were used:

- Availability--most technical training personnel could easily acquire the references and would be familiar with them
- Decision hierarchy for selecting references:
  1. Cited in the competency
  2. DOE product
  3. Readily available
  4. Content written in textbook format, with examples, exercises, checklists, etc. that could be cited in the study guide
- Less is better--the fewer resources a job incumbent must locate and read the better. There is no reason to cite obscure documents when others are readily available and serve the same purpose, to relate to the competency.

2. Purpose

The purpose of this study guide is twofold:

- To identify the training content and associated self-study activities that will promote the learning of the skills and knowledge associated with the radiation protection competencies.
- To provide a matrix of existing comparable and applicable learning activities (such as training or education courses) and materials, which can then be used to satisfy the competency requirements.

3. How to Use This Study Guide

a. Read this guide and complete the associated learning activities for those competencies you wish to satisfy through self-study. As you need to, refer to the glossary located in Appendix A, which contains the standard definitions.

b. For assistance or additional information, contact your supervisor or subject matter experts at your facility or site, or refer to identified resources in the Suggested Additional Readings and/or Courses at the end of each competency and in the Reference Matrix, located in Appendix B.

*** This study guide, by itself, does not satisfy a competency. Rather it is intended, as its name implies, as a <u>study guide</u> only. The scenarios, activities, etc. and the accompanying answers are the professional opinion of subject matter experts (SMEs)**

and do not necessarily reflect DOE's current policy.

4. DOE Orders in Transition

DOE Orders are in a state of transition. However, Order cancellation does not necessarily mean that the Order is no longer applicable to a site. For example, DOE N*441.1, Radiological Protection for Doe Activities,* which cancels three radiation protection-related Orders, states:

"Cancellation of an Order does not, by itself, modify or otherwise affect any contractual obligation to comply with such an Order. Canceled Orders that are incorporated by reference in a contract shall remain in effect until the contract is modified to delete the reference to the requirements in the canceled Orders."

This study guide refers to both the old and new Orders. There are three reasons for this: (1) as stated above, many facilities are contractually obligated to follow the old Orders, (2) the replacement process is dynamic and will continue for some time, and (3) the old Orders are often content-oriented and house the in-depth details regarding processes and procedures.

Rather than publish a matrix of new and old Orders within this study guide, participants should refer to the document, *Crosswalk of Old Directives Numbers to New Directives Numbering System*. This is an excellent resource. It is linked to the DOE homepage (http://apollo.osti.gov/) "Clearinghouse for Training, Education and Development" (http://cted.inel.gov/cted/) or may be reached directly at the following gopher site:

gopher://VM1.HQADMIN.DOE.GOV:70/00/doemenu1/directiv/251cross.asc

NOTE: The study guides were developed to provide a timely route for incumbents to utilize existing materials. It is anticipated that they will be supplemented and/or replaced by other courses and more detailed materials as they are located or developed.

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